



Emergency nurses' knowledge about ventilator-associated pneumonia

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ABSTRACT

Introduction: Given the increasing number of patients requiring mechanical ventilation in emergency departments in recent years, prevention of ventilator-associated pneumonia is very important. Nurses play a significant role in prevention of ventilator-associated pneumonia. This study aimed to determine the emergency nurses knowledge about prevention of ventilator-associated pneumonia.

Methods: The present descriptive study was conducted in Iran, from July to October 2018. All the nurses with at least a bachelor degree, who are working in two emergency departments of two teaching hospitals, were asked to participate in this study. The "knowledge about ventilator-associated pneumonia" questionnaire consisting of 9 items was used to assess the knowledge of nurses. The results were analyzed using SPSS-16.

Results: In total, 53 nurses participated in this study. The mean score of correct answers of nurses to these 9 items was 4.4 ± 1.6 . Nurses give the most correct answer to the item about patient's position on the bed so as to reduce the risk of pneumonia with a correct answer of 72.9%. The least correct answer was also given to the item about how humidifier was changed with a correct answer of 1.9%. None of the nurses participating in the study were able to answer all the items correctly. The mean score of knowledge of nurses who had participated in workshops about taking care of patients on mechanical ventilation was significantly higher than those who had not participated in such workshops (4.8 vs. 3.8) ($p = 0.045$). The mean score of knowledge in nurses who were familiar with the international guidelines for ventilator-associated pneumonia prevention was significantly higher than those who were not familiar with such guidelines (5.1 vs. 4.1) ($p = 0.045$).

Conclusion: Emergency nurses participated in this study had inadequate knowledge about the prevention of ventilator-associated pneumonia. Nurse's knowledge affected by participation in related workshop and familiarity with ventilator-associated pneumonia guidelines. Considering the importance of this issue, it is necessary to improve the knowledge of the emergency nurses in this matter by holding training courses.

1. Introduction

Ventilator-associated pneumonia (VAP) refers to the infection of lower airways that occurs in people who are on mechanical ventilation (MV) which usually develops 48 h or longer after the intubation of the patient [1–3]. VAP is the most common infection among patients requiring MV [4]. According to the findings of previous studies, more than 80% of hospital-acquired pneumonia is related to VAP [2]. Diversity in the prevalence of VAP has been reported in different countries. However VAP is more prevalent in less developed and developing countries [5,6]. The occurrence of VAP in one patient increases the number of days requiring MV, the length of hospital stay in the intensive care unit (ICU), the treatment costs, and mortality rates [3,7,8]. The results of a study in the United States reported that the direct and indirect costs of VAP is approximately \$57,000 [9]. Factors such as

male gender, aging, underlying diseases, chronic obstructive pulmonary diseases, low level of consciousness, the need for prolonged MV, the need for reintubation after extubation, patient's position (supine position), infections of other organs, the need for tracheostomy, the use of anti-acids, the excessive use of antibiotics and bronchoscopy can increase the chance of the occurrence of VAP in a patient [8,10].

Given the high mortality rate of such infections, prevention has always been an area of special importance [11]. In order to prevent the occurrence of VAP, nurses who are taking care of patients on MV play a significant role [12] and it is necessary that they have enough knowledge and information in this regard. This issue has led researchers from different countries to study it. In a major study from 2006 to 2007, Labeau et al., examined the knowledge of nurses working in the ICUs of 22 European countries about VAP. The mean of the correct responses of nurses was 45.1%. The results of Labeau et al., indicated that only 55%

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